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ABSTRACT

This skills pack is intended to assist basic numeracy tutors working with adults needing help with prenumber work, number concepts up to 10, time telling, and British money handling. The package includes notes on using the materials provided; materials for use in assessing student skills with respect to color and shape recognition, number recognition and place value, and symbol recognition; matching and posting games; a "how many" wall chart; a number chart; lessons on telling time (including a clock for students to make and an activity on reading time tables); and a shopping game for four players. (MN)

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NUMBERS

Start Here

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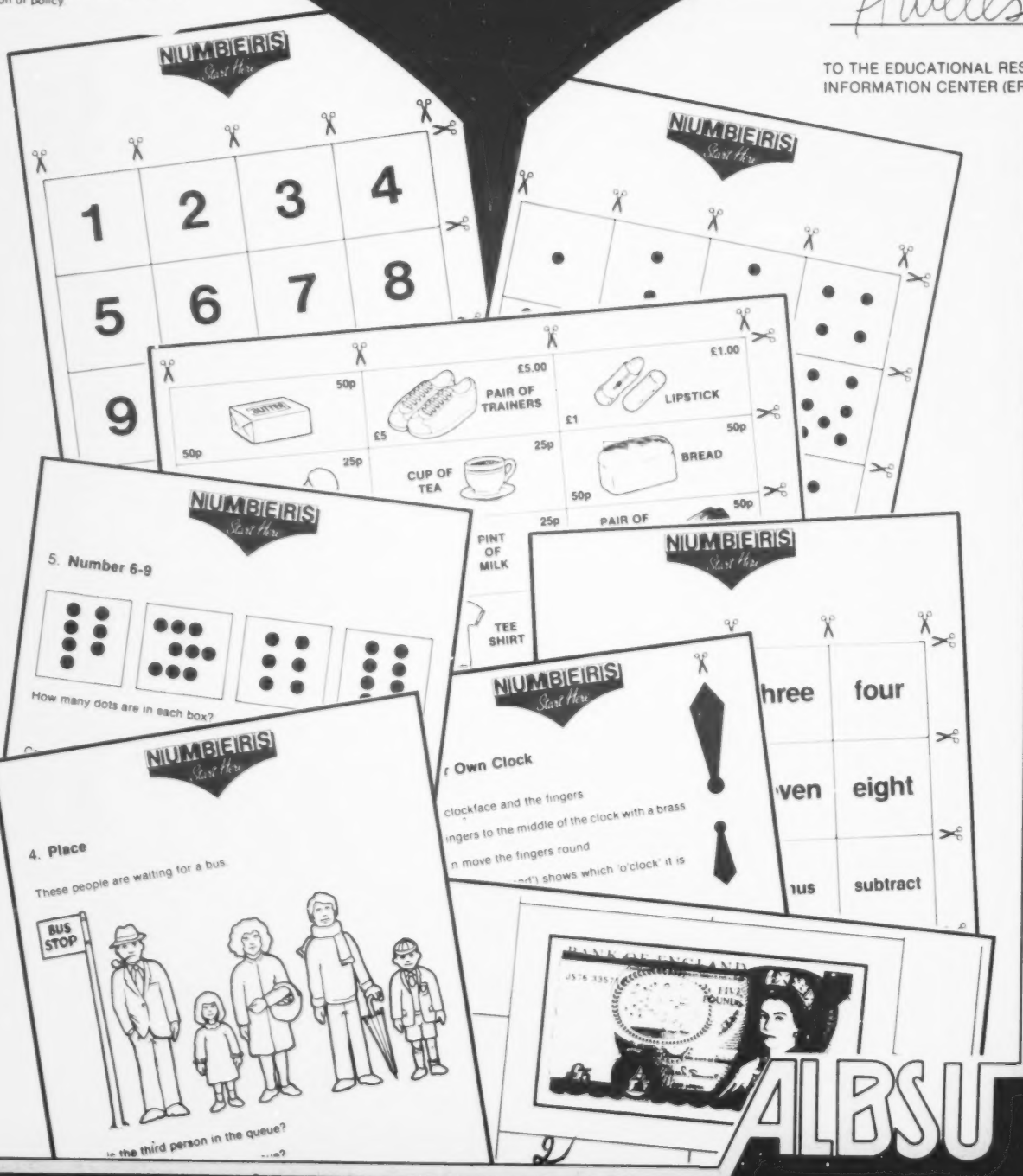

Foreword

"Numbers Start Here" was produced as part of the Numeracy Lift Off Project in Merseyside and Cheshire sponsored by ALBSU during 1982/83. The overall aim of the Project was to achieve a concentrated thrust in the development of materials and good practice in the region largely through the involvement of numeracy practitioners working in small groups.

ALBSU believes that "Numbers Start Here" is worthy of much wider distribution and has, therefore, published it in order that it is available throughout England and Wales. Furthermore, we hope that other publishers will take advantage of the valuable work carried out in Merseyside and Cheshire and similarly publish some of the material produced.

My thanks are due to all those involved in producing the material, to Ros Penny, the Project Co-ordinator and to Pamela Jones at ALBSU who co-ordinated this publication.

Alan Wells
Director
ALBSU

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NUMBERS Start Here

Introduction

As a group, and with the help of other basic numeracy tutors, we have identified some common problems experienced in the teaching of adult numeracy. This pack is intended for use with students needing help with pre-number work, number concepts up to ten and the beginning of telling the time and handling money.

As with all basic education students the approach is vital, particularly at the first meeting. Many people felt that some form of assessment/worksheet which could be presented to even the lowest ability student on the first visit would help to overcome the initial problem of "getting to know the student and getting him started". It would also solve the problem of keeping a new student usefully occupied during the early part of the lesson when other students are arriving and needing attention. Once the class is started it is usually easier to spare a few minutes to work with a new student who will have used this period to overcome much of his apprehension at the thought of the new experience and will, hopefully, have been able to attempt at least some of the assessment/worksheet. Even if he has not been able to tackle any of the sums he will perhaps have been able to do the matching exercises whilst at the same time covertly observing the tutor and students and absorbing the atmosphere and accepted routine of classroom procedure. Notes on the use of the assessment are included in the package.

The latter part of the package is intended to provide not only ready made materials but also ideas and suggestions which can easily be made or adapted to suit the specific needs of different students of varied ability. Do please adapt, where necessary, to make the materials relevant to the needs of your students.

Many of the games and wall charts were originally large, colourful and attractive but the cost of reproducing these would have been prohibitive. Everything has, therefore, has been reduced to A4 size. However, the ideas are there. Visual impact can easily be improved by colouring or by cutting out magazine pictures and sticking them onto large sheets of card. For very basic students this activity will help co-ordination and dexterity and also prove to be enjoyable.

The worksheets in this pack are designed for immediate reproduction and use. The puzzles and games are printed on sheets and may be made more durable by attaching them to card and covering them with transparent adhesive film.

Group Members

Hazel Glassfield
Kay Parr-Burman
David Morgan
Bill Russell
Gil Owen
Brenda McVey
Liz Delaney
George Webster

NUMBERS Start Here

Contents

Tutors notes
Assessment material
Matching games
"How Many" wall chart
Number chart
Posting game
Telling the Time
Shopping Game for four players

Teacher's Notes

Pre-Number

Please colour squares marked:

1. Red
2. Blue
3. Yellow
4. Green

Test for Colour Recognition (for information only to avoid confusion in use of materials linking colour to specific number e.g. Red = 1).

Test for Shape Recognition.

These tests can be done by any method available or according to the individual preferences of the tutor (e.g. card, colour wheel, objects).

Number Recognition (Oral)

Start with numbers 1 to 5 then if successful at this level try 6 to 9.

If the student can cope with numbers up to 5 easily there is no reason why 6 to 9 should not be tackled at the same time.

First check ability to count in sequence.

Second check number recognition by showing pictures of the figures and asking the student to name each one.

Third check knowledge of relationships between symbolic representation of number and actual number of objects. (Does the student recognise that 5 of anything can be represented by figure 5?).

Number Recognition (Manual)

Ask the student to write numbers 1 to 5 or 9 from dictation.

Ask the student to draw groups of dots in sets of 1 upwards and label them with the appropriate figure.

Check that the student appreciates the application of this principle to a practical situation — (e.g. Can the student identify the number of cigarettes left in a packet and write that number down unaided?).

Introduction to Place Value (Oral)

Tell the student to look at the picture of the bus queue. (The queue is chosen because it has a definite beginning and end so there is no confusion about which end to start counting).

Each person in the queue must be easily identifiable e.g. by size, sex or distinguishing feature such as pipe, basket, umbrella, etc.

Question the student by asking a question such as "Is the lady with the basket the first person in the queue? Well then, which place is she in?"

If you have not treated numbers 6 to 9 alongside 1 to 5 repeat the above procedure with these numbers. Leave number 10 and zero for special treatment later.

Symbol Recognition

Ask the students what the symbol + means.

Ask the students what the symbol — means.

Test their ability to add and subtract symbol sums involving dots instead of figures.

Test their ability with simple figures such as 1 + 2, 2 + 3, 4 + 2.

Also at this stage use = sign for equals.

Repeat procedure with × and ÷ signs.

At this stage it is useful to work with the same figures where possible as this will emphasise any hesitation in the use of the different signs. (e.g. 2 + 2 = 4 will give the same answer as 2 × 2 = 4 so it will be better to use 3 × 3 = 9 and 3 + 3 = 6 but where possible the same numbers which give different answers will be better than a wide range of numbers).

If the student successfully completes all sections of the test, a simple graded four-rule test may be given.

NUMBERS Start Here

Check List for Assessment Level O

Date..... No. in Group.....

Type in Group..... (evening numeracy/(3-day Basic Ed/Literacy/MSC, etc)

Age Range..... Sex.....

Length of Lesson..... Time Taken.....

Method Used..... (1-1 or group or other).

Please Tick the Appropriate Assessment in each instance

Colour

Can name all four primary colours on sheet.....

Recognises and can name red.....

Recognises and can name blue.....

Recognises and can name green.....

Recognises and can name yellow.....

Can not name any of four primary colours on sheet.....

Can join every pair of colours.....

Can join red pairs.....

Can join blue pairs.....

Can join green pairs.....

Can join yellow pairs.....

Cannot join any of the pairs.....

Shapes

Can identify and name all three shapes.....

Can identify and name square.....

Can identify and name triangle/pyramid.....

Can identify and name circle.....

Cannot name any shape.....

Cannot name and identify any shape.....

Can join every pair of shapes.....

Can join squares only.....

Can join triangles only.....

Can join circles only.....

Cannot join any pairs of shapes consistently.....

Number Recognition (Oral)

Can count in sequence (tick each number correctly counted)

1.....2.....3.....4.....5.....6.....7.....8.....9.....

Can count and recognise number of dots on each domino

1.....2.....3.....4.....5.....6.....7.....8.....9.....

Can recognise and identify figure to represent number of dots

1.....2.....3.....4.....5.....6.....7.....8.....9.....

Number Recognition (Manual)

Can write numbers 1 to 5 from dictation.....

Can write numbers 6 to 9 from dictation.....

Can only write following numbers from dictation.....

Can draw dots at random when asked

1.....2.....3.....4.....5.....6.....7.....8.....9.....

Can write figures to represent number of dots on dominos 1 to 5.....

Can write figures to represent numbers on dominos (dots) 6 to 9.....

Can only write figures to represent following numbers of dots.....

Place Value

Can point to third person in queue.....

Can point to first person in queue.....

Can point to fourth person in queue.....

Can point to second person in queue.....

Can point to fifth person in queue.....

Can identify little girl as second person in queue.....

Can identify pipe-smoking man as first person in queue.....

Can identify little boy as fifth person in queue.....

Can identify lady carrying basket as third person in queue.....

Can identify man with umbrella as fourth person in queue.....

Symbol Recognition

The tutor draws the symbol and asks the student if he knows the meaning of it.

Recognises + as meaning to add.....

Recognises — as meaning to subtract..... (accept take away)

Recognises × as meaning to multiply..... (accept times)

Recognises ÷ as meaning to divide..... (accept share)

Can add dots working from sheet after oral instruction..... unaided.....

Can subtract working from dots after oral instruction..... unaided.....

Can add figures without dots after oral instruction..... unaided.....

Can subtract figures without dots after oral instruction..... unaided.....

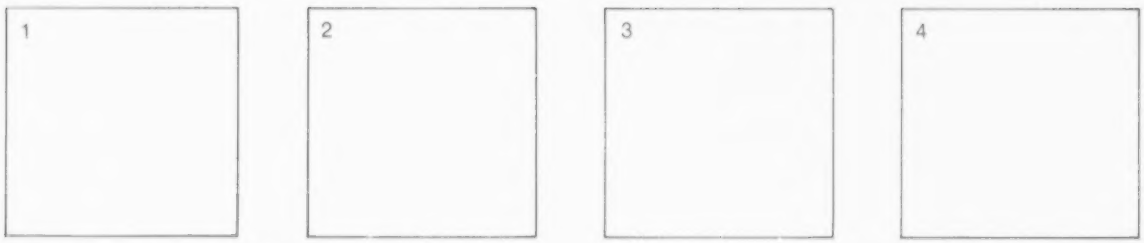
Can multiply using dots from sheet after oral instruction..... unaided .....

Can multiply using figures from sheet after oral instruction..... unaided.....

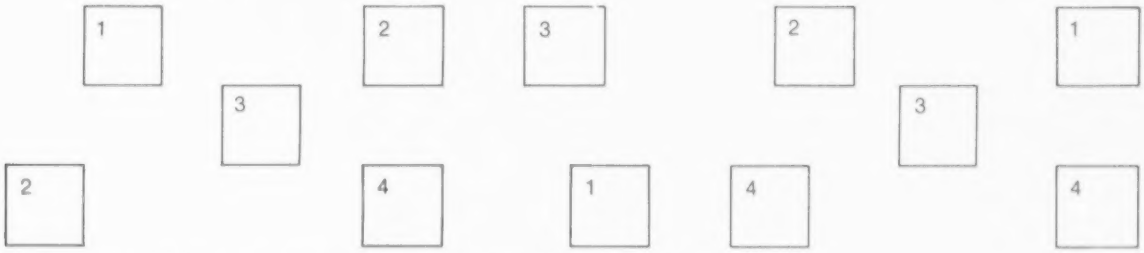
Can divide using dots from sheet after oral instruction..... unaided.....

Can divide using figures from sheet after oral instruction..... unaided.....

1. Colours

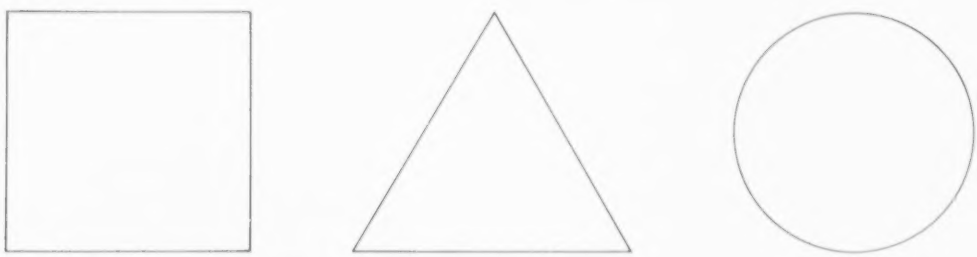


Can you name these colours?

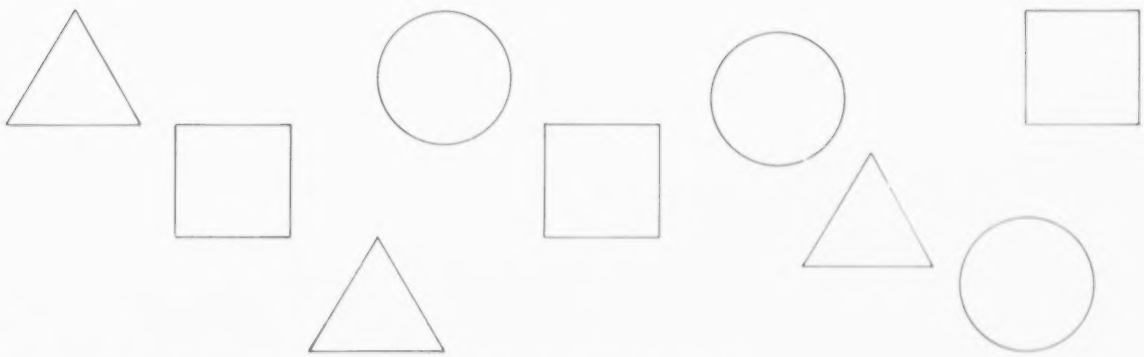


Can you join the matching colours with a line?

2. Shapes



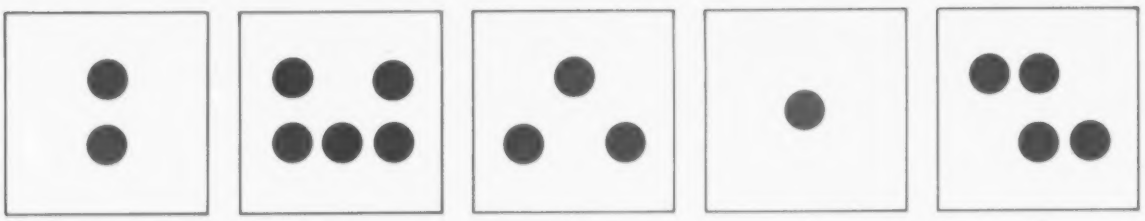
Can you name these shapes?



Can you join the matching shapes with a line?

3. **Number 1-5**

How far can you count?



1. 2. 3. 4. 5.

How many dots are in each box?

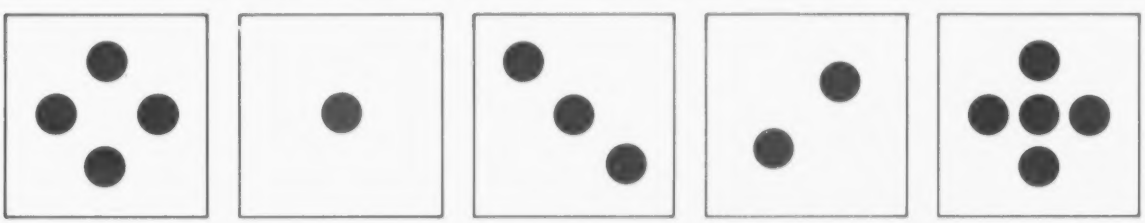
1. .....2. .....3. .....

4. ..... 5. .....

Can you write the numbers one to five?

Can you draw two dots
four dots
one dot
three dots
five dots

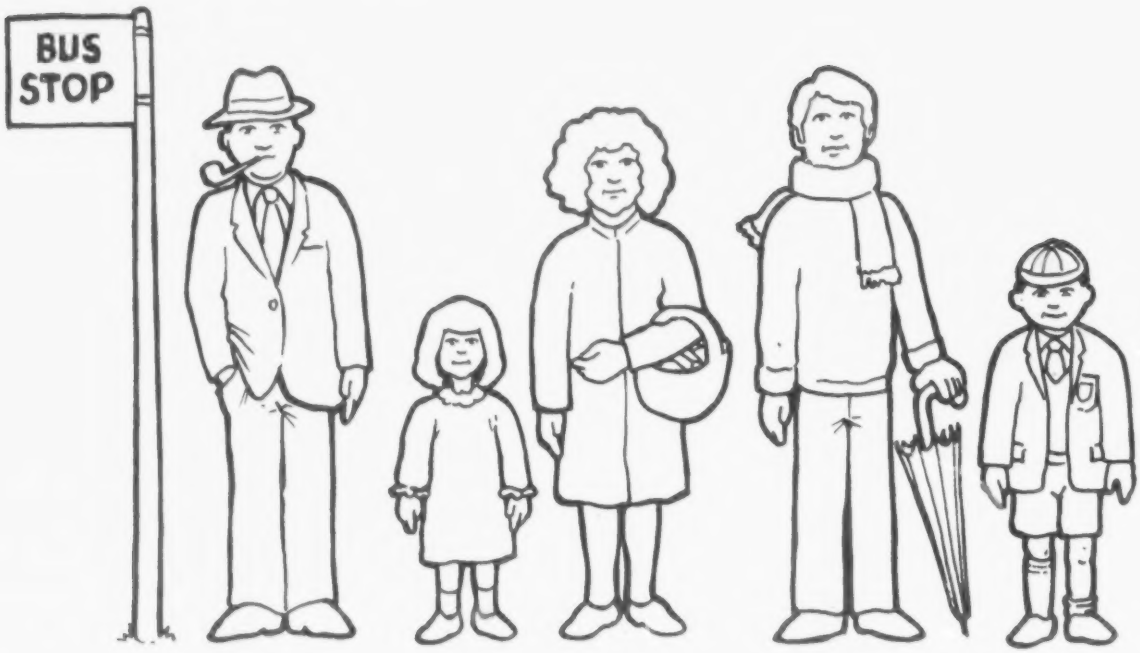
Can you write how many dots are in each of these boxes?



_____ _____ _____ _____ _____

4. Place

These people are waiting for a bus.



Who is the third person in the queue?

Who is the first person in the queue?

Who is the fourth person in the queue?

Who is the second person in the queue?

Who is the fifth person in the queue?

In what position in the queue is the little girl?

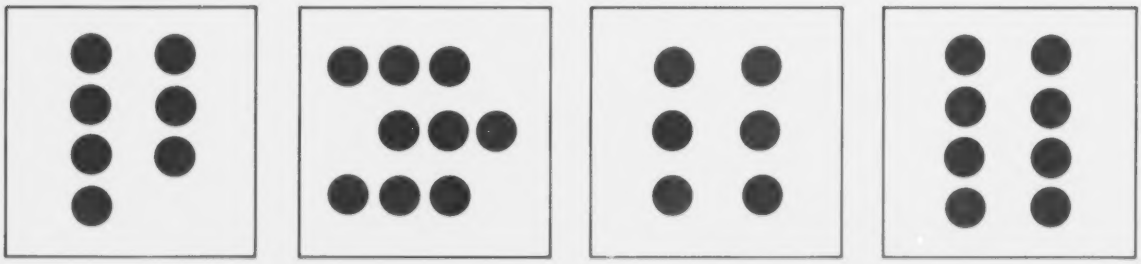
In what position in the queue is the man smoking the pipe?

In what position in the queue is the little boy?

In what position in the queue is the lady carrying a basket?

In what position in the queue is the man carrying an umbrella?

5. **Number 6-9**



How many dots are in each box?

Can you write the numbers six to nine?

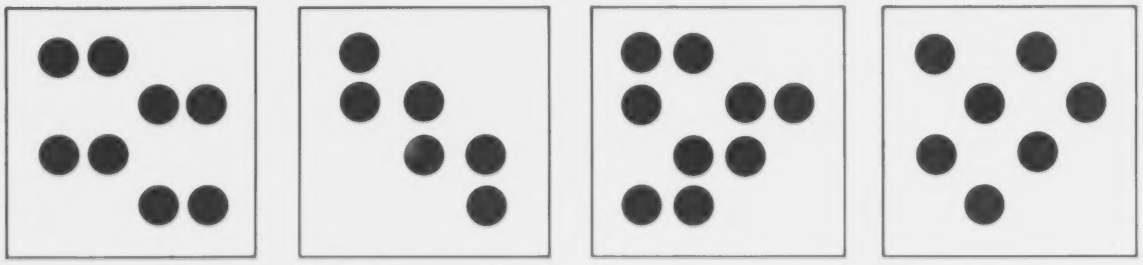
Can you draw six dots

eight dots

seven dots

nine dots

Can you write how many dots there are in each of these boxes?



6. Symbol Recognition — Plus and Minus

Can you tick the box next to the correct number of dots?

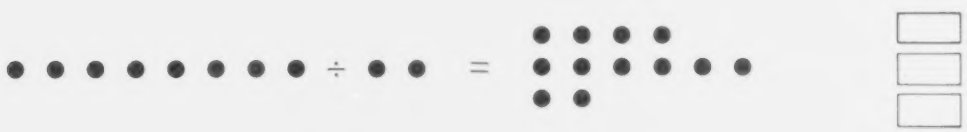
● ● + ●	=	● ● ● ● ● ● ●	☐ ☐ ☐
● ● ● + ● ●	=	● ● ● ● ● ● ● ● ● ●	☐ ☐ ☐
● ● ● ● + ● ●	=	● ● ● ● ● ● ● ● ● ● ● ● ●	☐ ☐ ☐
● ● − ●	=	● ● ● ● ●	☐ ☐ ☐
● ● ● − ● ●	=	● ● ● ● ●	☐ ☐ ☐
● ● ● ● − ● ●	=	● ● ● ● ● ● ● ● ●	☐ ☐ ☐

2 + 1 =	3 + 2 =	4 + 2 =
2 − 1 =	3 − 2 =	4 − 2 =

Can you write in the correct answers?

7. Symbol Recognition — Multiply and Divide

Can you tick the box next to the correct number of dots?



$4 \times 2 =$ $3 \times 2 =$ $3 \times 3 =$

$4 \div 2 =$ $6 \div 3 =$ $8 \div 2 =$

Can you write in the answers?

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Basic Number Games for Adult Slow Learners and Absolute Beginners

	Suggested follow-up work from Assessment Test
Number Recognition	Domino and matching games
Symbol Recognition	As above
Shape Concept	Jigsaw shapes, stencils for labelling, tessellation shapes, reflecta shapes, templates, find the shape hidden in the picture, shape dominos. (Most of these materials can be found in any catalogue of Primary school materials or Secondary school remedial materials).
Place Concept	This is the area where we had the most difficulty and there appears to be little readily available material for use on this concept. Jigsaw cards with number, word and picture were all that we found which appeared to have an easily applied use. Another idea is the use of the flannel board or magnetic board.

The number and word patterns on the following sheets could be mounted on any thin card which is available.

Editor's Note:

The original patterns were drawn by mentally handicapped Basic Education students. Modifications were necessary for reproduction by off-set lithography.

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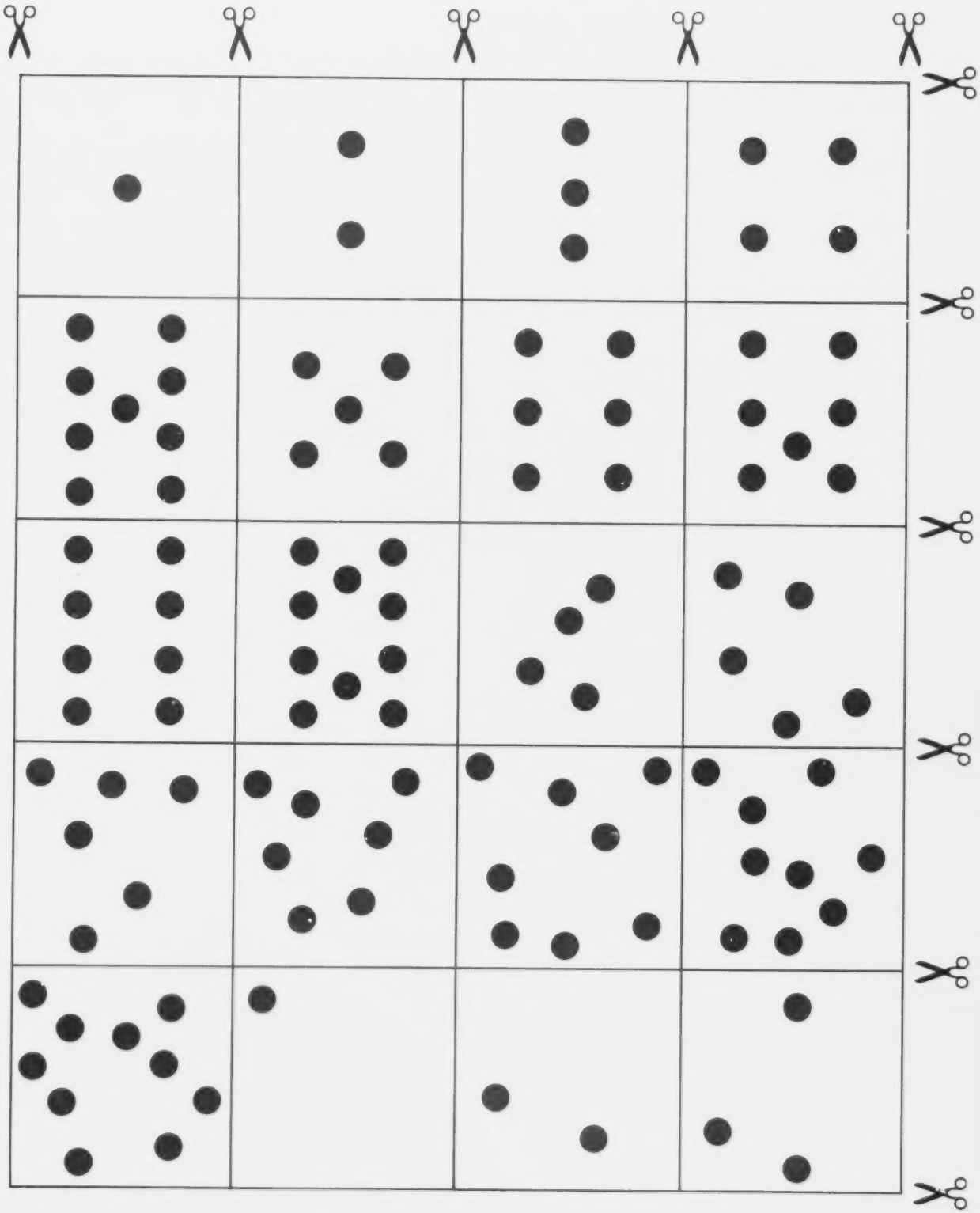


Games for which Number and Word Cards can be used

Snap

Match Number to Number
Match Pictures to Number
Match Symbol to Symbol
Match Odd Number to Odd Number
Match Word to Word
Match Pictures to Word
Match Symbol to Word
Match Even Number to Even Number

Snap at agreed total (e.g. When two cards total 10).

Forfeits

Decide whether the group is going to practice addition, subtraction, multiplication or division.

The first player plays a card, then the second player plays a card, then the third player plays and adds, subtracts, multiplies or divides the two cards in any way possible.

If it is not possible to perform a function (e.g. $5 \div 3$) the function can be changed to multiply.

If the third player gives a correct answer he plays another card.

If he is wrong the next player gives him a card or every other player gives him a card and the next player tries to answer the sum.

The player with cards left at end of game is the loser.

Find the Pairs

All cards are laid face down on the table. Players take turns to pick them up.

If they match a pair they discard them by their place and have a point for their score.

This can be used to match figure to figure, figure to pictures, figure to word, symbol to word.

Sequence

Arithmetic can also be played. The player with the highest number starts, the next player plays a symbol ($+$, $-$, $\times$ or $\div$) the next player plays a figure or number word, this is followed by an ($=$) equals sign and finally the answer. According to the ability of the players it is wise to remove the higher numbers or set a limit to the value of the sums which can be allowed.

The manufacture of these cards encourages group co-operation, aids visual perception, provides a realistic work situation with an "Adult" purpose in a small workshop environment which is not only "out of desk" but "non-threatening" and provides an opportunity for the tutor to make an informal assessment of in-group relationships.

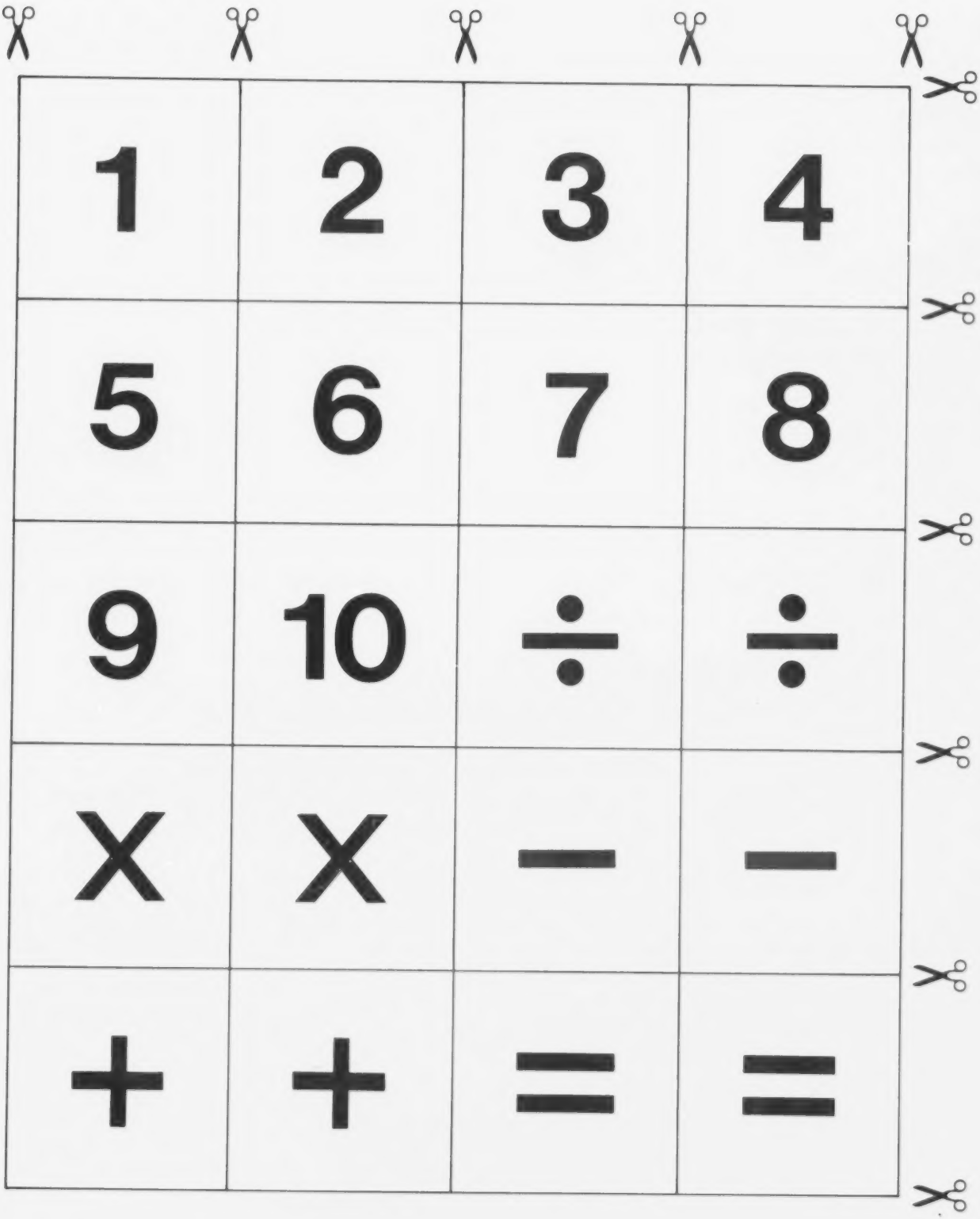
The cards have the additional advantage of being inexpensive, easily produced from readily available environmental materials and can be easily adapted to the level of the students. They can also be used in a one-to-one teaching situation, as a form of patience which the student can play alone or they may be used in the group situation.

These card games are multi-purpose. They can be used to encourage manual dexterity, accuracy in measurement and manipulation of drawing instruments and scissors. They could also be made of thin wood in the woodwork class. They can be used to give extra practice in writing numbers neatly and provide an easily observed motive for a high standard of work. They also involve the student in the organisation of his own learning activities and make use of "fun" as a motivating factor.

They are designed to offset the monotony of the necessary repetition involved in the development of number bonds, to stimulate and speed up mental processes, improve manual and eye co-ordination and to improve and encourage confidence in the individual student together with a sense of group cohesion and self-help.

No doubt the individual tutor will think of many other uses for the cards and probably the students, no matter how low their ability, will create their own variations.

NUMBERS
Start Here



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NUMBERS
Start Here

one	two	three	four
five	six	seven	eight
nine	ten	minus	subtract
times	multiply	divide	share
add	plus	equals	makes

a. "How Many" Wall Chart

Students must join the pictures to the appropriate number, either by drawing a line or by threading a lace.

To use laces: back the chart with card and make small holes with a skewer at "x" and "o". Knot one end of a lace and thread through "x" so the knot is behind the card. The student then threads the metal tag into "o" by the appropriate number. The length of the lace may be adjusted to make the exercise self correcting.

A larger wall chart may be made by cutting out magazine pictures and sticking them onto large sheets of card. Encourage students to take part in this activity.

b. Number Chart

This may be stuck onto card and covered with self-adhesive transparent film. Basic students may then trace the number shapes with a water soluble Pentel-PM2 for film (or a similar pen) which can easily be wiped off later.

c. Posting Game

Directions and suggested variations are on the sheet.

d. Telling the Time

There are simple instructions and vocabulary for students although help will probably be needed. Only "minutes past" are introduced here. A brass paper fastener is needed to make the clock.

e. Shopping (4 player's)

There are four master cards, each having a value (£5, £1, 50p, 25p). Each player takes one master card. The small cards are placed face down in a pile. Each player, in turn, takes a card. If it matches his master he has another turn. If not, he discards the card. The next player may choose the discarded card or the one from the top of the pack. The first one to fill each blank space on the master is the winner.

"How Many" Wall Chart

Students must join the pictures to the appropriate number, either by drawing a line or by threading a lace.

To use the laces: back the chart with card and make small holes with a skewer at "x" and "o". Knot one end of a lace and thread through "x" so the knot is behind the card. The student then threads the metal tag into "o" by the appropriate number. The length of the lace may be adjusted to make the exercise self correcting.

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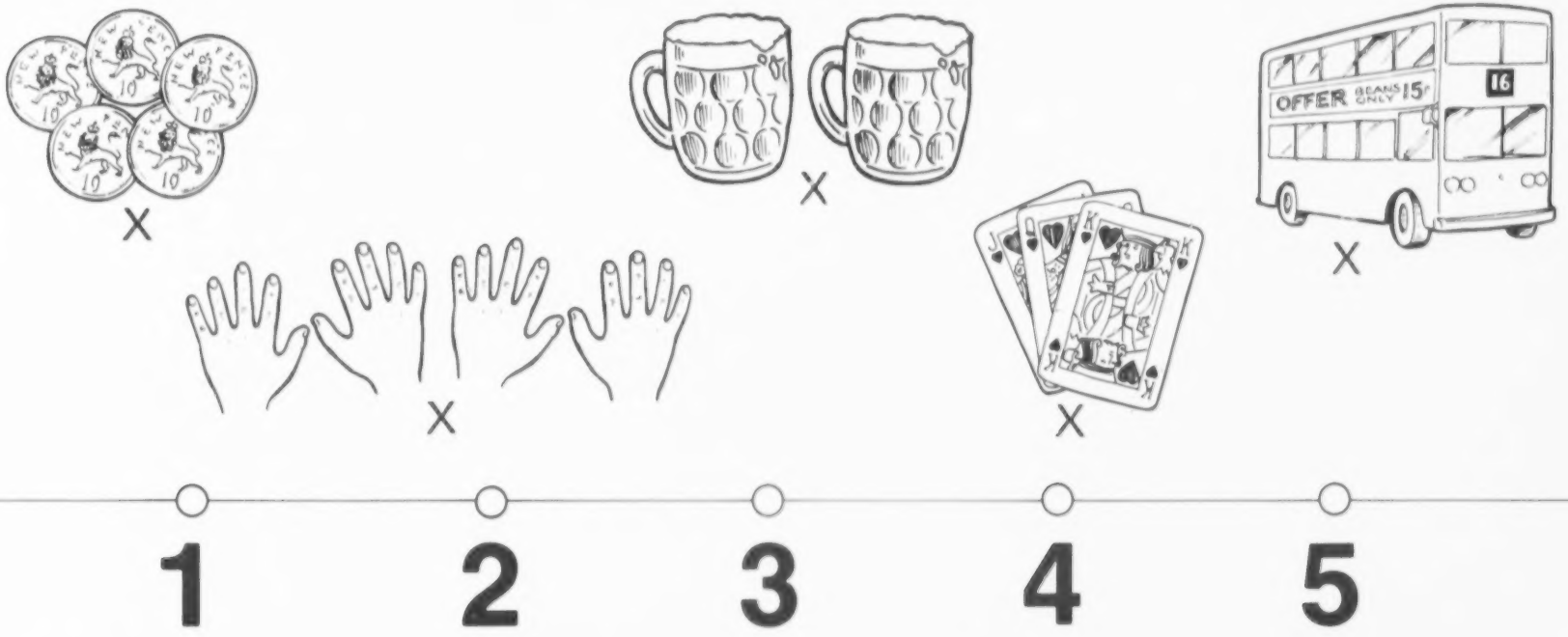

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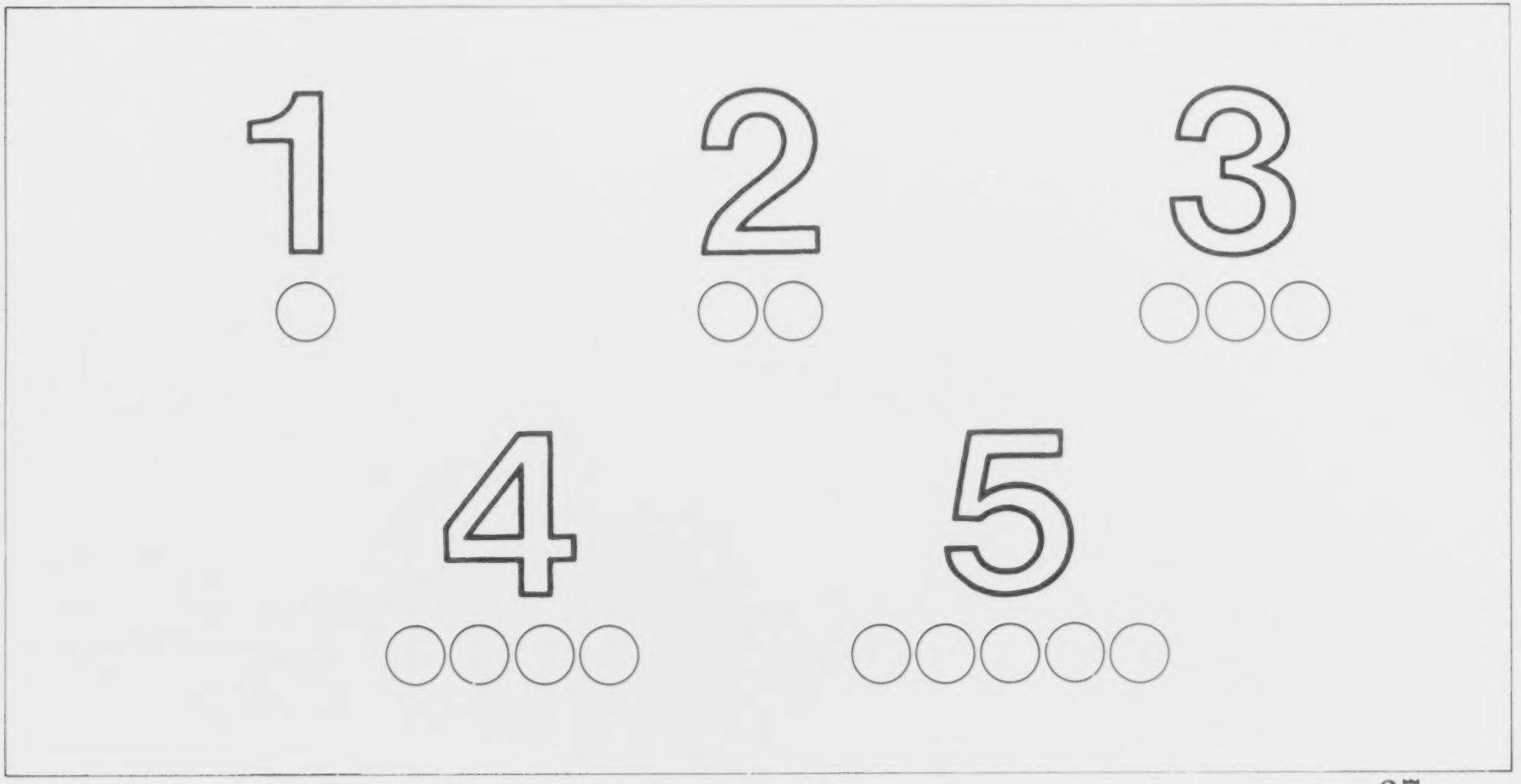
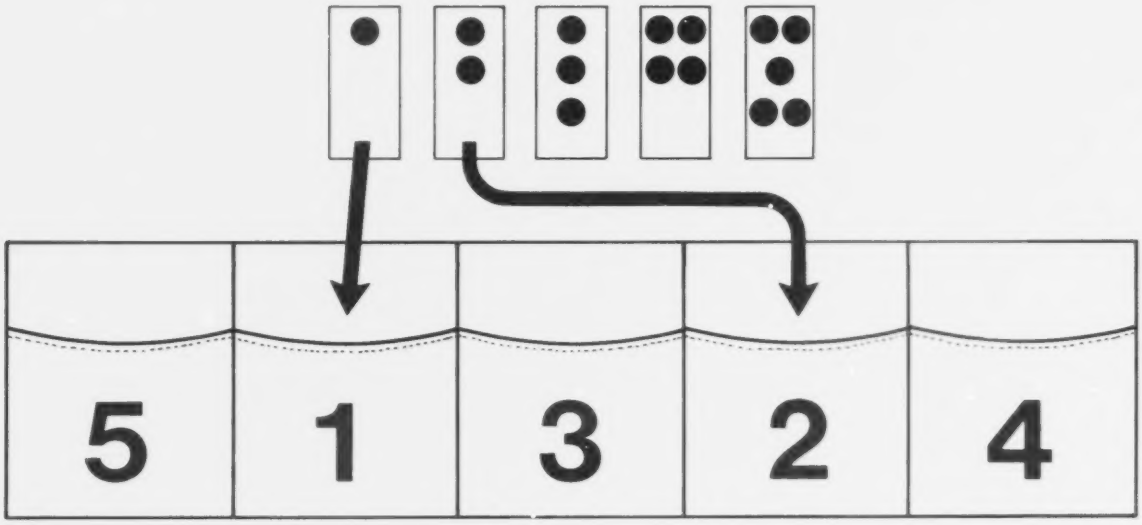


Suggestions for a posting game

Make pockets, or take evelopes, and put them up on the wall. The student posts the appropriate card into each pocket.

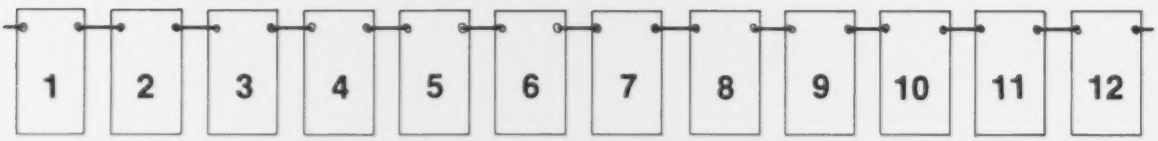
To vary this for very basic students ask them to fill the pockets with the correct number of objects, e.g. pens, cigarettes, nuts and bolts.



Telling the Time

Can you count up to twelve?

Cut out the numbers on the next page and join them together with a piece of string, like this:



Now join the ends together

Can you make them look like a clock face?

Can you see that 1 comes after 12?

Let's think about minutes

There are 60 minutes in an hour. We usually count them in fives

Can you count up to 60 in fives?

5 10 15 20 25 30 35 40 45 50 55 60

Cut out these numbers from the next page and thread them onto a piece of string.

Join the ends together

These are the numbers past "o'clock"

NUMBERS
Start Here

1	2	3	4
5	6	7	8
9	10	11	12
5	10	15	20
25	30	35	40
45	50	55	60

30

Make Your Own Clock

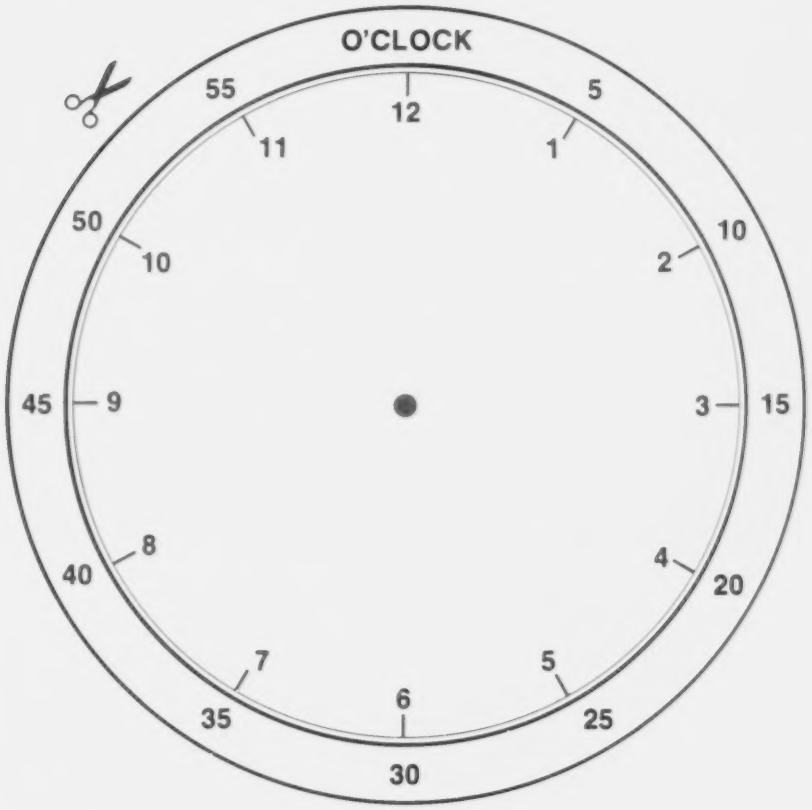
Cut out the clockface and the fingers

Fasten the fingers to the middle of the clock with a brass paper fastener

Now you can move the fingers round

The small finger (or 'hand') shows which 'o'clock' it is

The big finger shows the 'minutes past'



Now make your clock show these times:

1 o'clock 3 o'clock 5 minutes past 4

25 minutes past 6 10 minutes past 3

35 minutes past 8 45 minutes past 9

Timetables

Here is a timetable for one day:

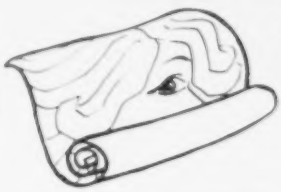
Breakfast	8 o'clock
Tea break	10 o'clock
Dinner time	12 o'clock
Tea time	4 o'clock
Supper	9 o'clock

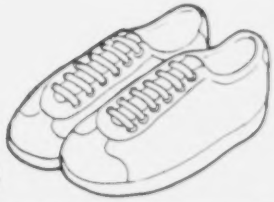
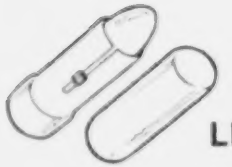
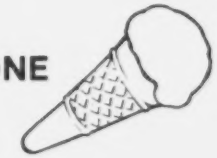
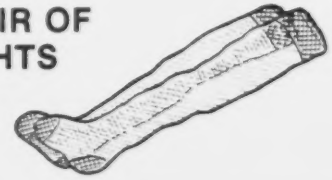
Can you make a timetable for your day?

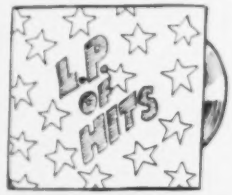
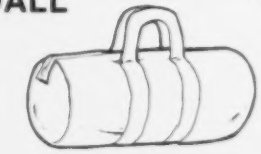
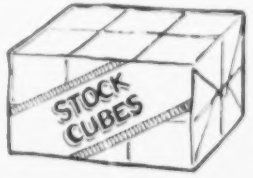
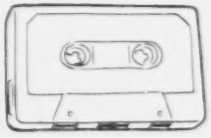
Shopping Game (4 players)

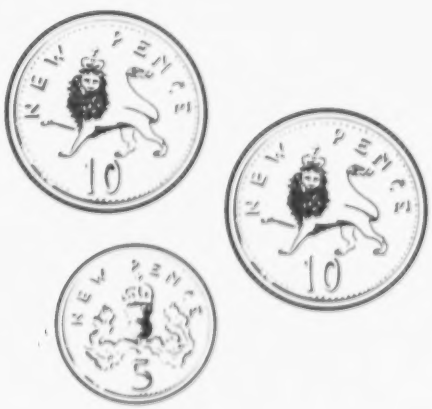
There are four master cards, each having a value (£5, £1, 50p, 25p). Each player takes one master card. The small cards are placed face down in a pile. Each player, in turn, takes a card. If it matches his master he has another turn. If not, he discards the card. The next player may choose the discarded card or the one from the top of the pack.

The first one to fill each blank space on the master is the winner.

BELT £1 £1.00	£1 £1.00
SOAP POWDER £1 £1.00	SKIRT £5 £5.00
PAIR OF EARRINGS £1 £1.00	CIGARETTES £1 £1.00
SINGLE RECORD £1 £1.00	SHOPPING BAG £5 £5.00
CIGARETTE LIGHTER £5 £5.00	POSTER  £1 £1.00

50p 50p	£5.00  PAIR OF TRAINERS £5	£1.00  LIPSTICK £1
25p ICE CREAM CONE  25p	25p CUP OF TEA 25p	50p BREAD 50p
25p COKE 25p	25p PINT OF MILK 25p	50p PAIR OF TIGHTS  50p
50p PINT OF BEER 50p	£5.00 TEE SHIRT £5	£1.00 FISH AND CHIPS £1
£5.00 HANDBAG £5	50p BAG OF SWEETS 50p	50p EGGS 50p

£5.00 PAIR OF SLIPPERS £5	50p PEN 50p	50p 50p
£5.00  £5	25p 25p	50p TIN OF FRUIT 50p
HOLDALL £5.00  £5	25p NOTE PAD 25p	50p  50p
£5.00  CASSETTE £5	25p TOILET SOAP 25p	25p 25p
£1.00 HAIR SPRAY £1	25p NEWSPAPER 25p	25p 25p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